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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/534,731	05/12/2005	Shigeru Okaniwa	2204-051342	8989
28389 7590 12/27/2007 THE WEBB LAW FIRM, P.C. 700 KOPPERS BUILDING 436 SEVENTH AVENUE PITTSBURGH, PA 15219				
EXAMINER				
MEHTA, MEGHA S				
ART UNIT		PAPER NUMBER		
4116				
MAIL DATE		DELIVERY MODE		
12/27/2007		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

**Application No.**

10/534,731

**Applicant(s)**

OKANIWA ET AL.

**Examiner**

MEGHA MEHTA

**Art Unit**

4116

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 9-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 9-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SF 298)  
Paper No(s)/Mail Date 08/2006
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_

**DETAILED ACTION**

***Status of the Application***

1. Claims 1-8 have been cancelled.
2. Claims 9-18 are ending and presented for examination.

***Priority***

3. Acknowledgement is made of Applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). Benefit has been granted.

***Information Disclosure Statement***

4. The information disclosure statement (IDS) was submitted on 08/11/2006. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the IDS is being considered by the examiner. Please refer to the applicant's copy of the 1449 submitted herewith.

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

2. Claim 9 is rejected under 35 U.S.C. 102(a) as being anticipated by JP 2002-346770 Makoto et al.

The claim is drawn to a method of welding a sintered aluminum alloy. Makoto teaches the welding of a sintered aluminum alloy in paragraph [0006] of the detailed description. Thus all of the critical elements are well taught and properly included in this rejection.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
  2. Ascertaining the differences between the prior art and the claims at issue.
  3. Resolving the level of ordinary skill in the pertinent art.
  4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
5. Claims 10-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 2002-346770 Makoto et al in view of US 3,963,449 Seki et al.

The claims are drawn to the method of welding a sintered aluminum alloy described above where the claims further require the sintered pieces to be a composite material with a ceramic particle of a specific diameter. Makoto fails to teach the ceramic particle. However, this modification would have been obvious to one of ordinary skill at the time of the invention when Makoto is taken in view of Seki because Seki teaches a composite material of aluminum alloy and ceramic particles in column 1, lines 4-8 and 19-26. The particle size disclosed by Seki in column 2, lines 63-64 is 1-400 microns. However, if the artisan required or desired smaller particles, he could easily separate the particles of a smaller diameter from the larger ones.

It would have been obvious to one of ordinary skill at the time of the invention to make such a modification because both Makoto and Seki teach aluminum alloy compositions. One would have been motivated to make such a modification because of the improved strength characteristics and resistance to abrasion.

6. Claims 13-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 2002-346770 Makoto et al in view of US 3,963,449 Seki et al, further in view of US 3,602,682 Hoeffleur.

The claims are drawn to the method of welding a sintered aluminum alloy described above, where the claims further require a welding aid with and without the ceramic particles, being of a specific shape and a specific composition.

In regards to claims 13 and 14, Makoto teaches the sintered pieces friction stir welded together and the aluminum alloy without ceramic particles in paragraph [0006] of the detailed description, but fails to teach the welding aid or aluminum alloy with ceramic particles. However, this becomes obvious when Makoto is taken in view of Seki because Seki teaches the aluminum alloy with ceramic particles in column 1, line 4-8 and 19-26. Both Makoto and Seki fail to teach the welding aid. But this, too, becomes obvious when Makoto and Seki are taken in view of Hoeffleur because Hoeffleur teaches a welding aid both in between and mounted upon the work pieces in column 1 lines 53-67.

Claims 15 and 17 require the welding aid to have a T- or H- shaped section. This is not taught by Makoto or Seki, but Hoeffleur teaches the welding aid that is both between and mounted on the work pieces in column 1, lines 53-67. These are not the solid T- or H-shaped aids required by the claim, however, the aid used by Hoeffleur has the same functionality as the

aids in the instant claim. Therefore, it would have been obvious to one of ordinary skill to use either aid, and it is up to the artisan to choose his preferred welding aid.

Claims 16 and 18 are drawn to the welding aid positioning and composition. As mentioned before, Hoeffleur teaches the aid to be between and mounted upon the work pieces in column 1, lines 53-67. And Seki teaches an aluminum alloy with ceramic particles in column 1, lines 4-8 and 19-26. Makoto, Seki and Hoeffleur all fail to teach the welding aid having different ratios of the ceramic particles in the portions in between and on top of the work pieces. However, this would have been obvious to one of ordinary skill in the art and is dependent on the desired final product. The artisan may choose to change the composition of the welding aid for the portion in between the work pieces to from that on top of them.

It would have been obvious to one of ordinary skill in the art to combine Makoto and Hoeffleur because both teach the welding of work pieces. One would have been motivated to make this modification because of the improved quality of the product when a welding aid is used.

7. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP 2002-346770 Makoto et al. as applied to claim 9 above, and further in view of US 5,794,835 Colligan et al.

Claim 12 is drawn to the method of welding a sintered aluminum alloy described above where the claim further requires the welding tool to have specific measurements. This is not taught by Makoto. However, it would have been obvious to one of ordinary skill to make these modifications when Makoto is taken in view of Colligan because Colligan teaches the lengths and speeds required in column 5, lines 19-21 and column 6, lines 41-43. Colligan even teaches a "contact zone" of the shoulder and the work piece, implying a 0mm depth of the tool.

Colligan fails to teach the shoulder radius. However, minor variations such as the lengths and dimensions of the tool can be easily modified by one of ordinary skill in the art. It does not change the functionality of the tool.

It would have been obvious to make these modifications because both Makoto and Colligan teach friction stir welding. One would have been motivated to make these modifications because of the improved quality of the weld that such speeds and dimensions afford as explained by Colligan in column 5, lines 24-28.

### ***Conclusion***

1. No claim is allowed.
2. Any inquiry concerning this communication or earlier communications from the examiner should be directed to MEGHA MEHTA whose telephone number is (571)270-3598. The examiner can normally be reached on Monday to Friday 7:30 am to 5:00 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vickie Kim can be reached on 571-272-0579. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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